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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,216	05/29/2001	Wilhelm Heine	NI 132	5875

7590 04/01/2003

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EXAMINER

MENON, KRISHNAN S

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 04/01/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/866,216	HEINE ET AL. <i>je</i>
	Examiner Krishnan S Menon	Art Unit 1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 1/31/05.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-15 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)  
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) Other: \_\_\_\_\_

## DETAILED ACTION

Claims 1-15 are pending.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilgendorff et al (US 4,695,380) in view of Timm et al (US 4,556,488).

Instant claim 1: Hilgendorff (380) discloses an apparatus for fluid separation comprising a pressure tight housing having a fluid inlet, retentate outlet and permeate outlet (3,5,4 -Fig 1,9), plurality of stacks of membrane filter elements arranged in series flow pattern (fig 9), each stack including a plurality of spaced membrane pillow elements (9-fig 1,9), and fluid flow is conducted in a meander like pattern through each stack (fig 9).

Hilgendorff does not teach plurality of separate stacks arranged in a longitudinal direction in the pressure housing. Timm teaches plurality of separate stacks of pillow membranes arranged

longitudinally in a pressure housing (see fig 1,2 and 6; col 1 line 67-col 2 line 40). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Timm in the teaching of Hilgendorff to arrange the plurality of membrane pillow stacks in the longitudinal direction of the vessel because this way, one could provide rectangular or oblong pillows with length twice the width (see Timm col 3 lines 34-46).

Claims 2-12 add further limitations as follows:

Instant claim 2: each pillow is contained in a closed space and includes inlet and outlet (fig 5), stacks arranged adjacent one another so that outlet of one is inlet of the next (see figures of Hilgendorff and Timm).

Instant claim 3: separating elements between adjacent stacks with inlets and outlets (see figures of Hilgendorff and Timm).

Instant claim 4: inlets and outlets are slots formed in the separating elements (28-fig 6, slot in 33 and 34-fig 9)

Instant claim 5: the membrane pillows are essentially oblong in shape (fig 3, 4)

Instant claim 6: the membrane pillows are arranged in longitudinally displaced fashion (staggered) so that the flow reversal areas are formed by the projecting ends of alternate pillows (9-fig 1, 5)

Instant claim 7: membrane pillows have planar stabilizing elements disposed between outer membrane elements (structure in fig 3, 4)

Instant claim 8: spacer element with elastomer sealing element between pillows (fig 5, 8-fig 2a)

Instant claim 9: sealing elements are O rings (10-fig 5)

Instant claim 12: stacks have oblong cross-section (fig 9)

Claims 10 and 11: Hilgendorff (380) does not teach two permeate openings per pillow as in claim 10 and the openings being at different distances from the opposite ends of the membrane as in claim 11.. Timm teaches two permeate openings (see figures). It would be obvious to one of ordinary skill in the art at the time of invention to make two permeate openings as taught by Timm in the pillows of Hilgendorff (380) because of the modified pillows being twice as long as the width, for proper permeate collection . It would also be obvious that the two openings would have to be at different distances from opposite ends when the pillows are stacked as in Hilgendorff.

2. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilgendorff (380) in view of Timm (488) as in claim 1 above and further in view of Luek et al (US 4,936,988).

Hilgendorff (380) in view of Timm (488) teaches a jacket for the stacks (see figures of Hilgendorff and Timm), which has an oblong or square cross-section (instant claim 15), and does not teach semicircular stack shells for the stacks (instant claim 13, 14). Luek (988) teaches circular stack shells formed from two or more pieces to accommodate rectangular (oblong) membrane stacks in a cylindrical housing, with a permeate discharge channel extending longitudinally there through (fig 1, 2; col 2 lines 30-45) for a membrane filter apparatus. It would be obvious to one of ordinary skill in the art at the time of invention to use the Luek (988) teachings in the teachings of Hilgendorff (380) in view of Timm (488) so that the shell would snuggly fit in the housing as taught by Luek.

#### *Response to Arguments*

Applicant argues that there is only one stack in Hilgendorff. It may be noted that Hilgendorff has multiple stacks, each stack having membrane pillows of a different spacing

compared to the adjacent stack. Accordingly, applicant's arguments regarding claims 2 and 3 are also not persuasive. Outlet of one stack is the inlet of the next stack (see fig 9) and the stacks are delimited by a membrane pillow.

Rest of the applicant's arguments have been considered, but are moot in view of the new grounds of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization

Application/Control Number: 09/866,216  
Art Unit: 1723

Page 6

where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan Menon  
Patent Examiner  
March 25, 2003

*Joseph Drodge*  
JOSEPH DRODGE  
PRIMARY EXAMINER